BAILEY'S DAM
In Red River
Alexandria Vicinity
Rapides Parish
Louisiana

HAER NO.LA-6



PHOTOGRAPHS
WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
NATIONAL PARK SERVICE
Department of the Interior
Southeast Region
Atlanta,Georgia 30303

HISTORIC AMERICAN ENGINEERING RECORD

# Bailey's Dam

HAER No. LA-6

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| Location: | In Red River<br>Alexandria vicinity, Rapides County, Louisiana |
| Date of Construction: | 1864 |
| Builder/Designer: | Built by Union troops from a plan suggested by Lieutenant Colonel Joseph Bailey of the 4th Wisconsin Cavalry. |
| Original Use: | To facilitate passage of the upper rapids |
| Present Use: | Same |
| Significance: | This 100-year-old dam is significant in that there has been no development in the area since the 1860s. |
| Edited and Transmitted by: | Jean P. Yearby, HAER, 1987 |

The group of structures known as Bailey's Dam were built by Union forces under the command of Major General Nathaniel P. Banks and Admiral David D. Porter between April 30 and May 12, 1864. As part of the Red River Expedition, Bank's army and Porter's squadron of 22 ships were to coordinate an advance on Shreveport, Louisiana, with a column under Major General Frederick Steele which was marching from Little Rock, Arkansas (Sherman 1864a, 1864b). Porter's gunboats and a portion of Bank's force under the command of Brigadier General A. J. Smith began moving up Red River on March 11. By the evening of March 14, the lead gunboats had captured a small fortification north of Marksville known as Fort De Russy. They reached Alexandria the next day and began occupying it in preparation for the arrival of the bulk of Bank's army. The latter was slow in coming up because of heavy rains, and did not make it to the town until the 24th (Banks 1864, Stone 1864).

Within three days, however, Bank's forces were on the move again, this time toward Natchitoches. The majority of the army continued to travel overland, but Smith's corps was convoyed ahead by Porter's squadron. Already the river level was so low that several of the vessels had difficulty crossing the rapids just above Alexandria. The large ironclad Eastport required two and a half days of work to be hauled over the rocks, and the hospital ship Woodford was so battered in the attempt that it sank (Naval History Division 1971:IV-36). Eventually, Porter was forced to leave part of his squadron behind and proceed upriver with 13 gunboats and the Army's transports. Bank's land force reached Natchitoches on April 1 and Porter's reduced squadron arrived at Grand Ecore, a landing nearby, two days later. There, Smith's corps disembarked and joined the remainder of Bank's army on the main road to Shreveport through the uplands. Porter was to continue upriver and rendezvous with the army at Shreveport. Having experienced difficulties in getting his vessels as far upriver as Grand Ecore, Porter decided to leave his larger gunboats there and to proceed toward Shreveport with only three ironclads and three wooden steamboats.

On April 8, two days after leaving Natchitoches, the land units of Bank's force were attacked near Mansfield by Confederate forces under Lieutenant General Richard Taylor (Johnson 1958). Bank's troops retreated in some disorder to Pleasant Hill, leaving behind over 2,000 men, 156 wagons, and 20 pieces of artillery. The next afternoon Taylor attacked again, but this time after initial success the Confederates were beaten by a counterattack from forces under General A. J. Smith. Confederate losses were over 1600 men, while Union casualties totalled about 1400. Despite an apparent victory, Banks decided to retreat that night to Grand Ecore.

During this time, Porter was slowly working his way upstream toward Shreveport, unaware of Bank's problems. By April 10, he had reached Springfield Landing, about 30 miles of Shreveport. There he found that the Confederates had sunk the large steamboat New Falls City across the river's channel (Porter 1854c:172). As Porter prepared to remove the obstruction, he received dispatches from General Banks, telling of the previous days' fighting

and ordering him to return to Grand Ecore. The descent proved more difficult than the trip upriver, as the Confederate forces now felt strong enough to line the high banks, directing musket and artillery fire on the gunboats. Little serious damage was done to the vessels, and they reached Grand Ecore on the 13th. By this time the river was falling steadily, and Porter realized that he had to move his gunboats below the rapids at Alexandria or risk having them trapped. On April 15, while heading downstream from Grand Ecore, the ironclad Eastport struck a Confederate mine and sank in six feet of water (Naval History Division 1971:IV-13 to IV-44). Her captain spent the next six days attempting to repair the damage and pump out the water. She was able to get underway again on April 21, only to go aground eight times in the next five days. Finally, on April 26, Admiral Porter ordered her abandoned and destroyed.

Having lost the protection of Porter's gunboats, Banks decided to withdraw to Alexandria on April 20 and reached the town on the 25th. Most of the army's troop transports had already crossed the rapids by that time, but several of Porter's gunboats remained upriver, delayed by efforts to save the Eastport. On April 26, the wooden gunboats Fort Hindman, Cricket, and Juliet, along with the pump steamers Champion No. 3 and Champion No. 5 came under heavy Confederate musket and artillery fire at Deloges' Buff (Naval History Division 1971:IV-48). The Cricket succeeded in running past the batteries, but was heavily damaged in the process. Champion No. 3 was captured, and the other three vessels were forced to withdraw upriver. The next day, they again attempted to pass the batteries, and all three suffered additional damage. The Fort Hindman and Juliet succeeded in getting through, but the Champion No. 5 grounded and had to be destroyed.

By April 28, Porter had succeeded in returning his squadron to the comparative safety of Alexandria, but he then faced the apparently unsurmountable task of getting them across the rapids. The river level had dropped to three feet over the rapids, trapping 10 of the gunboats, including eight ironclads. Seven feet of water were required to float the heavy ironclads, and the prospects for such a rise in that season were slim. The options facing the Red River Expedition were to remain in Alexandria guarding the gunboats until the river rose, possibly not until December, or to destroy the squadron to prevent it from falling into Confederate hands. Neither alternative was attractive, but given Bank's performance in the previous weeks' battles, Porter was convinced that the army would abandon him if threatened (Porter 1864b:154).

It was in this situation that a plan suggested by Lieutenant Colonel Joseph Bailey of the 4th Wisconsin Cavalry was put into effect. Bailey was a former lumberman acting as chief engineer for the XIX Corps of Bank's army. The scheme he devised, apparently as early as April 9, involved building a pair of wing dams across the river to raise the water level (Bailey 1864:403). He had previously used a similar technique to refloat two captured steamboats on

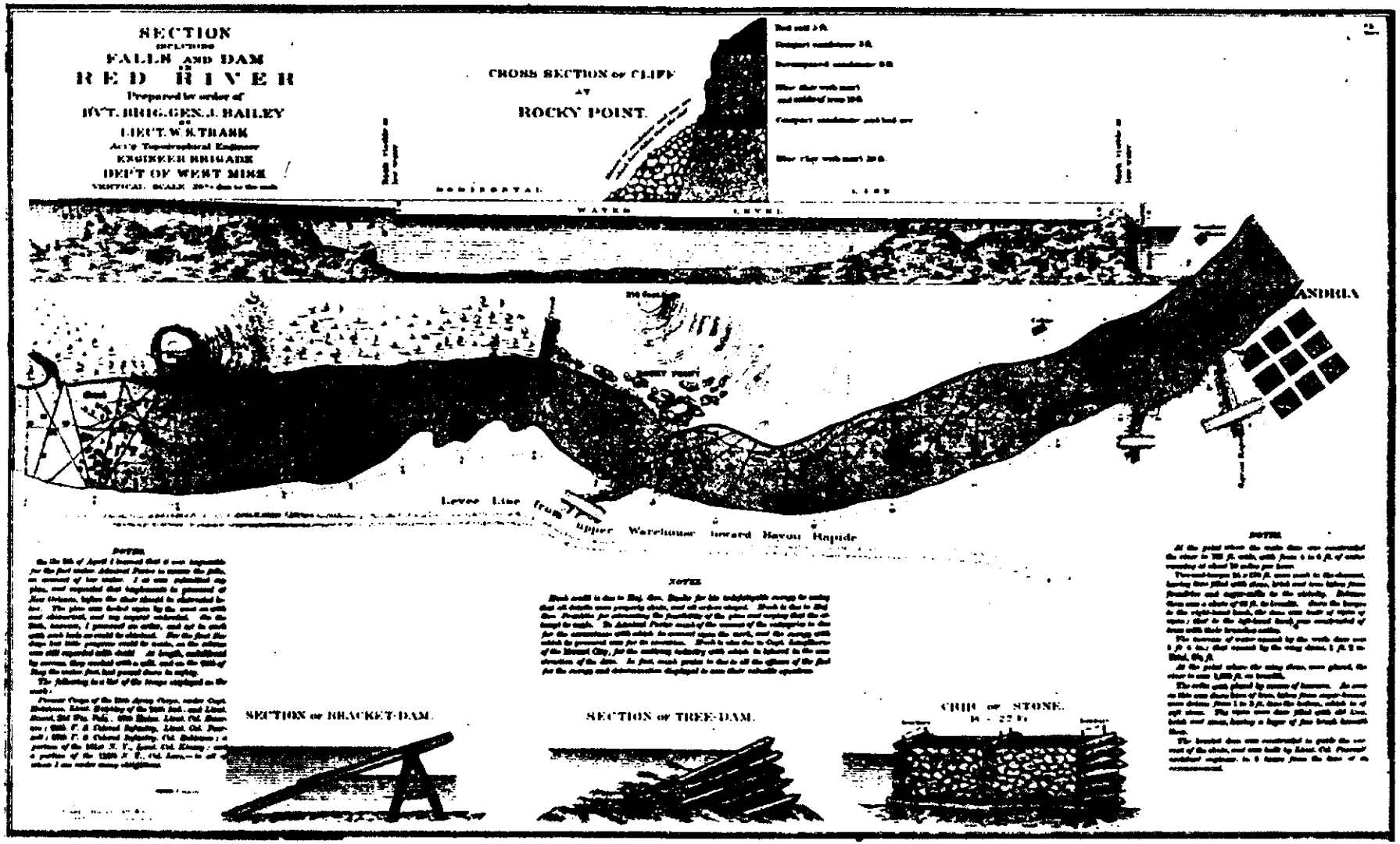


Figure No. 1. Map and sketches which accompanied the report of Colonel Bailey. (U.S. War Department 1891-1895:Plate 53.)

Thompson's' Creek near Port Hudson (Longacre 1975:8). However, the size and current of Red River were many times that of Thompson's Creek, and Bailey's proposal was dismissed by most, including Admiral Porter, as folly. Nevertheless, with no other alternatives available, General Banks issued an order authorizing Bailey to begin work on the dams on April 29.

The site which Colonel Bailey selected was located immediately upstream from the lower falls or rapids, approximately 325 m above the mouth of Bayou Rapides (Figure No. 1). The river's channel was over 230 m wide at that point, and sandstone ledges were exposed almost from bank to bank, creating a drop of almost 2 m in the water level (Longacre 1975:9). A second series of rapids were located about 1500 m above the lower falls at a point where the river was over 300 m across. The upper rapids, while extensive, do not appear to have obstructed the channel as completely as the lower ones.

Bailey's plan called for the construction of two wing dams: one from the east bank extending roughly to center channel and oriented slightly upstream, and second from the west bank directed toward the terminus of the first (Bailey 1864). The eastern dam was to be built of trees in order to take advantage of the forested conditions on that side of the river. A drawing which accompanied Bailey's report on the work indicates that the tree dam was constructed of alternating layers of logs laid parallel to the current ones and laid perpendicular to it (Figure No. 2). The former had their limbs and branches still attached, and their tops pointed upstream. The cross-pieces were placed so as to raise the downstream portion of the dam, allowing the thicker bases of the trees to bear most of the water's force. Stone was then piled on the upstream end of the structure to weigh it down. The drawing depicts five layers of logs parallel to the current separated by five layers of cross logs.

The Alexandria side of the river lacked the extensive wooded areas found on the east bank, and for this reason Bailey chose to use a different type of dam there. He constructed timber frameworks which he termed cribs and anchored them to the sandstone outcroppings by driving iron bars at the corners of each crib (Figure No. 3). The bottoms of the cribs were then lined with a layer of brush, and the structures were filled with stone, brick, and pieces of iron, much of it taken from sugarmills and other buildings in the Alexandria area (Bailey 1864).

A gap of about 50 m was to be left between the ends of the wing dams. There, Bailey proposed to sink four of the Navy's coal barges filled with rubble, scrap iron, and sand in order to further reduce the opening. Once the water had reached the required depth, he apparently planned to break the dam and allow the ships to ride the crest of the water over the rapids.

Work on the dams progressed relatively rapidly, as Colonel Bailey was able to employ about 3,000 men drawn from various regiments. Of particular

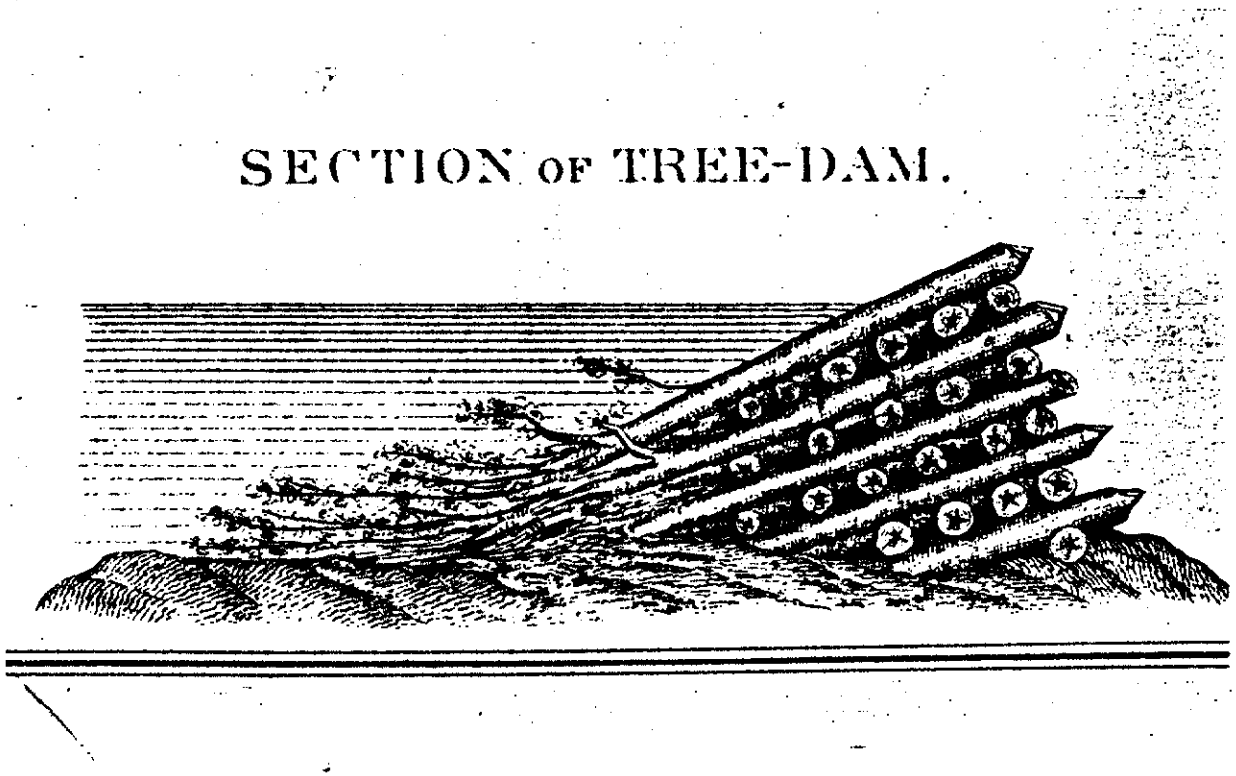


Figure No. 2. **Sketch of tree dam from figure which accompanied Colonel Bailey's report (U.S. War Department 1891-1895:Plate 53-3).**

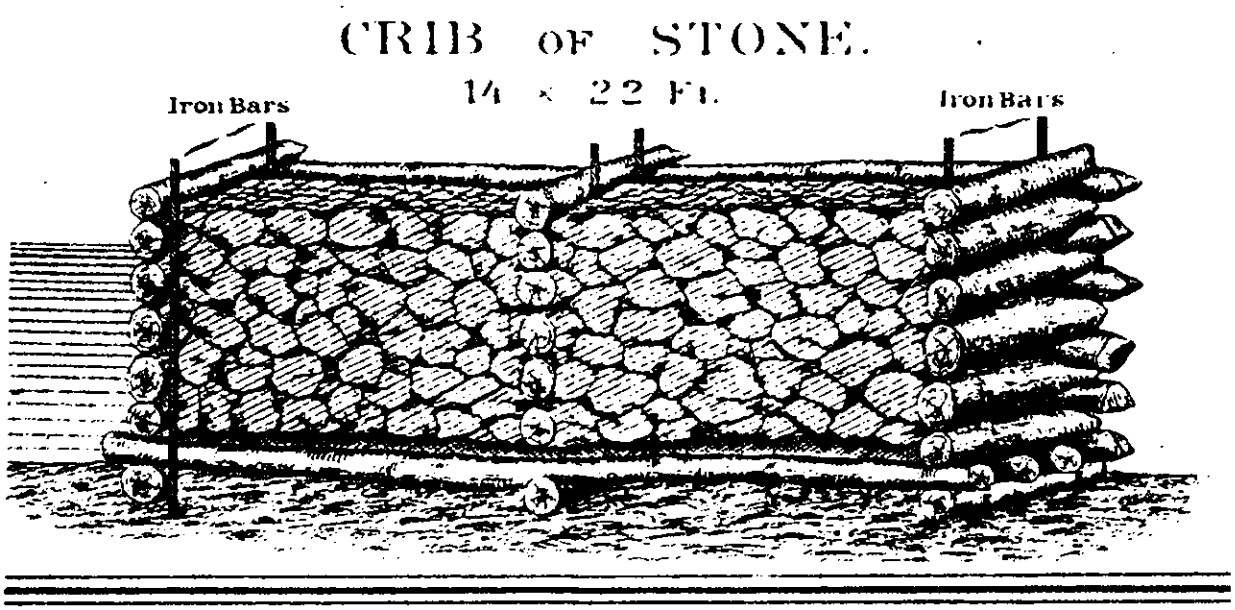


Figure No. 3. **Sketch of Stone Crib from figure which accompanied Colonel Bailey's report (U.S. War Department 1891-1895:Plate 53-3).**

importance to the project were the troops from Maine and Wisconsin who had experience in felling timber. By May 8, the three dam and stone cribs had been completed, and the four barges sunk. A water depth of 8 feet, 8-1/2 inches was reached that day, and the Navy was notified to make ready to run the rapids (Longacre 1975:40). Early the next morning, the water pressure built up by the dam forced two of the barges out of their positions. Fortunately for the Union forces, the barges swung against the rocks below the dam, creating a chute over the rapids. Admiral Porter immediately ordered the side-wheeler Lexington to run the rapids. Although tossed by the strong current and caught for the moment on the rocks, the Lexington successfully cleared the obstacles, and was shortly followed by the Fort Hindman and two of the lighter ironclads, the Osage and the Neosho. After these vessels cleared the dam, the water level receded to a point where the remaining ships could not make the run.

Undaunted by the failure of his initial plan, Colonel Bailey immediately began work on three additional wing dams located at the upper rapids. The new dams were designed to relieve some of the water pressure on the original structures and to facilitate passage of the upper rapids. As at the lower falls, Bailey built a tree dam from the east bank and a series of stone cribs from the west bank. In this case, however, the stone cribs extended farther across the channel and were of lighter construction than those at the lower rapids (Cron 1937:424).

A third type of structure, which Bailey termed a bracket dam, was also constructed from the east bank immediately downstream of the new tree dam. The bracket dam consisted of a wooden trestle which supported inclined logs that had been covered by planking. Bailey's report states the structure was built under the supervision of Lieutenant Colonel U. B. Pearsall in a total of six hours (Bailey 1864).

By May 12, 1864, the new dams had been completed, and the water level above the lower dams had risen 14 inches. In order to improve the gunboats' chances of crossing the rapids, Admiral Porter had ordered that they be lightened by discarding a number of the older cannons, 32-pounders and 8-inch guns, and by removing as much of their armor as possible (Porter 1864d:513). After taking these precautions, three of the ironclads, the Mound City, the Carondelet, and the Pittsburg were hauled across the upper rapids, and then one by one run through the chute between the lower dams. The next morning, the last three ironclads, the Louisville, the Chillicothe, and the Ozark made the passage through the dams, and by mid-afternoon were convoying the troop transports of Bank's retreating army downriver.

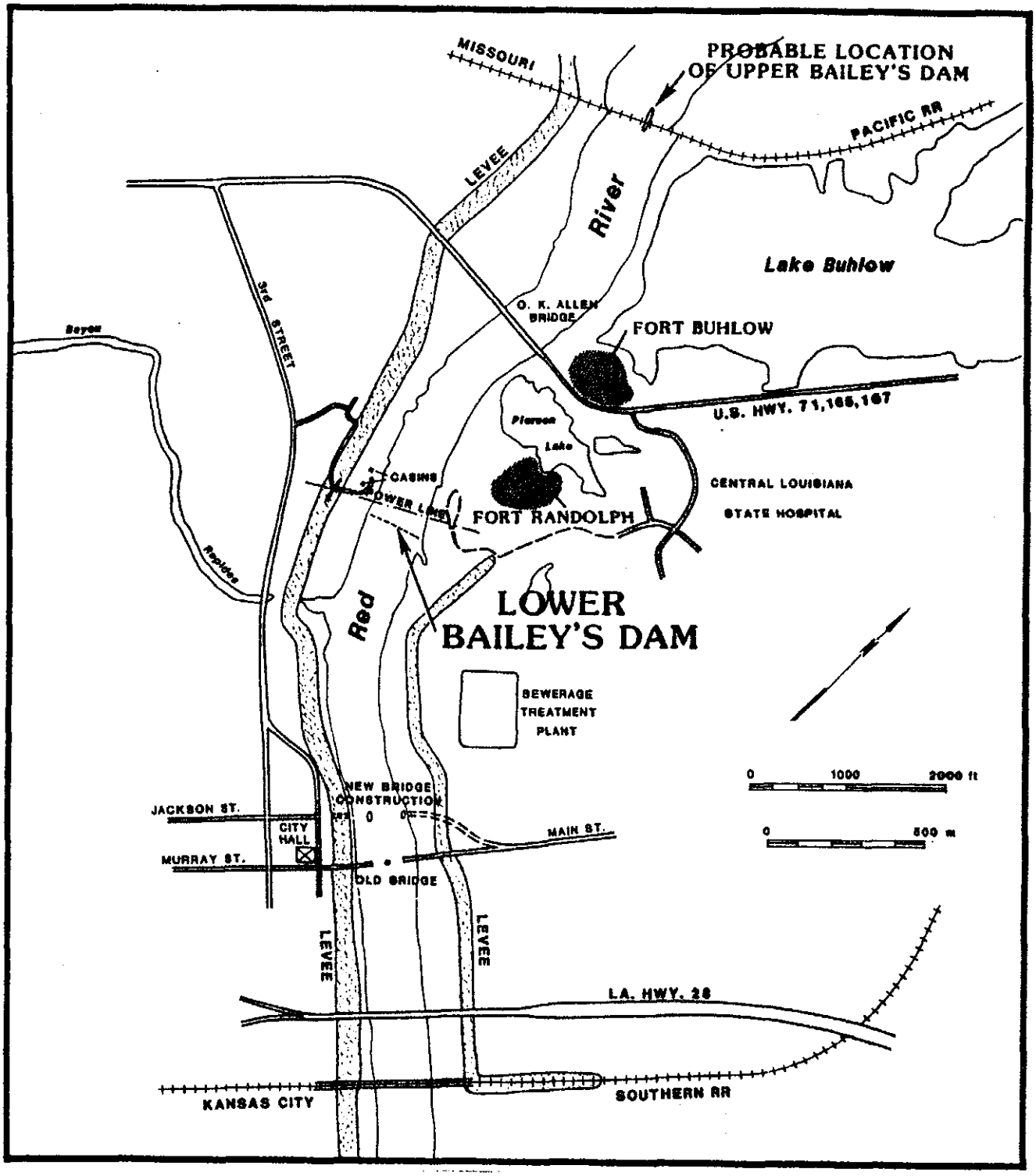


Figure No. 4. **Map of Alexandria-Pineville area in vicinity of Bailey's Dam.**

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